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Notice of Allowability	Application No.	Applicant(s)	
	10/679,671	SUGIURA, TAKURO	
	Examiner	Art Unit	
	Guiyoung Lee	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03/16/2006.
2. ☒ The allowed claim(s) is/are 1-19, 21 and 24-26.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Prelim./Amdt.

1. Receipt is acknowledged of the amendment filed Mar 09, 2006.
2. Claims 1-19, 21, and 24-26 are pending, and claims 20 and 22-23 have been cancelled.
3. In light of amendment to the claims and applicant's argument, the claim rejections under 35 U.S.C. 112, second paragraph, are withdrawn.

Allowable Subject Matter

4. Claims 1-19, 21, and 24-26 are allowed.
5. The following is an examiner's statement of reasons for allowance: In light of amendment to the claims and applicant's argument, the claim rejections under 35 U.S.C. 112, second paragraph, are withdrawn. With regard to claim 1, primary reason for allowance is the limitation in claim 1, "the distribution of the depth of the groove with respect to the distance such that a first area where the depth of groove is constant or linearly increased with respect to the distance from the end surface to the groove, and a second area formed more distal from the light emitting device than the first area in which an increasing rate of the depth of the groove with respect to the distance from the end surface is greater than that in the first area, and in two grooves adjacent to each other formed in at least one of the first and second area, a ratio of the depth of the groove formed in at least one of the first and second area, a ratio of the depth of the groove formed on a side apart from the end surface to the depth of the other groove ranges from 1 to 1.005". With regard to claim 16, primary reason for allowance is the limitation in claim 16, "the distribution of the depth of the groove with respect to the distance such that in the first area, a distance x (mm) from the end surface disposed with the light emitting device and a depth y (gm) of the groove at

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a position thereof satisfy expression $y = a_1x + b_1$, where a_1 is larger than 0 and less than 0.5, and b_1 ranges from 8.0 to 20". With regard to claim 17, primary reason for allowance is the limitation in claim 17, "the distribution of the depth of the groove with respect to the distance such that a depth y (um) of the groove and a distance x (mm) from the groove to the end surface disposed with the light emitting device satisfy expression $y = a_2x^2 + b_2$ or $y = a_3x^2 + b_3x + c_3$ or $y = a_4x^3 + b_4x^2 + c_4x + d_4$ where a_2 ranges from 0.010 to 0.024, b_2 ranges from -20 to 13, a_3 ranges from 0.050 to 0.080, b_3 ranges from -5.7 to -3.7, c_3 ranges from 50 to 130, a_4 ranges from 0.55 to 0.85, b_4 ranges from -0.055 to -0.026, c_4 ranges from 0.3 to 1.5, and d_4 ranges from 8.0 to 20". With regard to claim 18, primary reason for allowance is the limitation in claim 18 that "the distribution of the depth of the groove with respect to the distance such that there is a first area where the depth of the groove is constant or increasing with from the end surface to the groove, and a second area formed more distal from the light emitting device than the first area in which an increasing rate of the depth of the groove with respect to the distance from the end surface is greater than that in the first area, in the second area, the depth of the groove is given by a quadratic function, cubic function or exponential function of the groove and the distance from the groove to the end surface disposed with the light emitting device, in the distribution of the depth of the groove with respect to the distance from the end surface disposed with the light emitting device to the groove, there is a third area where the depth of the groove is constant irrespective of the distance from the end surface to the groove, and the third area is formed at a position more distal from the light emitting device than the first area and the second area". With regard to claim 19, primary reason for allowance is the limitation that "the distribution of the depth of the groove with respect to the distance such that the pitch between the grooves is

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formed to be constant irrespective of the distance from the end surface disposed with the light emitting device or formed wider in accordance with the distance from the end surface, wherein a pitch z (μm) of the groove and a distance x (mm) from the end surface disposed with the light emitting device satisfy expression $z = a_5x + b_5$, where a_5 is larger than 0 and less than 14, and b_5 ranges from 180 to 250". With regard to claim 21, primary reason for allowance is the limitation that "the distribution of the depth of the groove with respect to the distance such that the pitch between the grooves is formed narrower in accordance with the distance from the end surface disposed with the light emitting device, wherein a pitch z (μm) of the groove and a distance x (mm) from the end surface disposed with the light emitting device satisfy expression $z = a_6x + b_6$, where a_6 ranges from -14 to 0, and b_6 ranges from 280 to 350". Claims 2-15 and 24-26 depend from claim. Therefore, claims 1-19, 21, and 24-26 are patentable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guiyoung Lee whose telephone number is 571-272-2374. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571-272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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THOMAS M. SEMBER
PRIMARY EXAMINER